BFM

Balanced flue commercial water heater

BFM – 30/50/80/100/120

Wide range of balanced fanned flue room-sealed water heaters for installation in almost any location • Improved efficiency • Removable control column for convenient servicing • Control, high limit and energy cut-off thermostat triple protection ensures safe operation • Frost-protection thermostat • Stainless-steel burner for natural or LP gas • Two access covers for comprehensive waterside tank maintenance • Voltage-free contact for general fault indication • Steel pallet base for convenient transport and installation • Optional ancillaries: Unvented kits • Destratification pump kit • Powered anode

Innovation has a name.

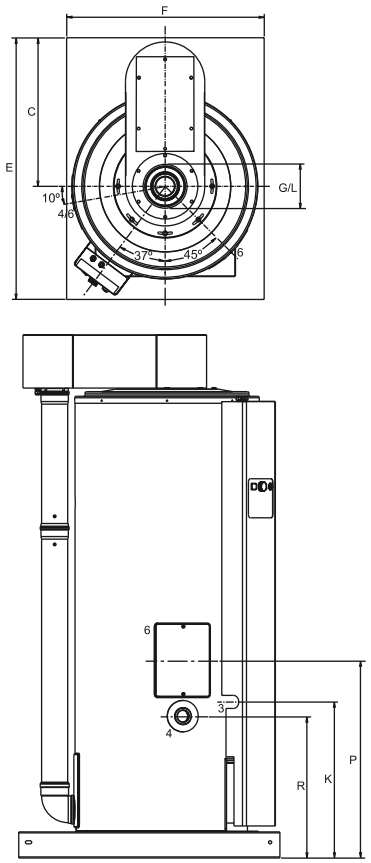
Technical specifications

		BFM 30	BFM 50	BFM 80	BFM 100	BFM 120
Gas data natural gas 2H (G20)						
Input*	kW	32.2	52.2	83.3	113.3	127.7
Output	kW	26.4	42.3	67.5	90.8	102.4
Inlet pressure	mbar	20	20	20	20	20
Burner pressure	mbar	12.5	12.9	12.9	12.5	14.0
Gas consumption**	m3/h	3.1	5.0	7.9	10.8	12.2
Diameter pilot orifice	mm	0.56/0.41	0.56/0.41	0.56/0.41	0.56/0.41	0.56/0.41
Diameter main orifice	mm	2.6	2.5	2.7	3.2	3.3
Max. flue gas temperature	°C	130	150	145	180	185
Flue gas discharge	kg/h	74.2	105.7	191.9	232.5	265.8
Gas data butane 3+ (G30)						
Input*	kW	31.4	49.9	81.3	110.5	n/a
Output	kW	26.4	41.4	67.5	90.8	n/a
Inlet pressure	mbar	50	50	50	50	n/a
Burner pressure	mbar	-	-	-	-	n/a
Gas consumption**	kg/h	2.3	3.6	5.9	8.0	n/a
Diameter pilot orifice	mm	0.25	0.25	0.25	0.25	n/a
Diameter main orifice	mm	1.25	1.25	1.3	1.7	n/a
Max. flue gas temperature	°C	130	150	145	180	n/a
Flue gas discharge	kg/h	-	98.6	187.8	228.7	n/a
Gas data propane 3+ (G31)						
Input*	kW	30.4	47.8	77.2	110.9	125.0
Output	kW	25.5	39.6	63.9	90.8	102.4
Inlet pressure	mbar	37	37	37	37	37
Burner pressure	mbar	-	-	-	-	22
Gas consumption**	kg/h	2.2	3.4	5.5	7.9	8.9
Diameter pilot orifice	mm	0.25	0.25	0.25	0.25	0.25
Diameter main orifice	mm	1.45	1.4	1.5	1.95	2.3
Max. flue gas temperature	°C	130	150	145	180	185
Flue gas discharge	kg/h	71.4	105.1	194.3	232.0	264.7
Draw-off capacity						
Storage capacity	l	309	298	253	253	253
Max. temperature setting	°C	73	73	73	73	73
30 min. ΔT=44°C	l	569	697	870	1074	1176
60 min. ΔT=44°C	l	827	1111	1529	1962	2176
90 min. ΔT=44°C	l	1085	1524	2189	2849	3177
120 min. ΔT=44°C	l	1343	1937	2849	3736	4177
Continuous ΔT=44°C	l/h	516	827	1319	1774	2000
Heating-up time ΔT=44°C	min.	36	22	12	9	8
30 min. ΔT=50°C	l	501	613	765	946	1035
60 min. ΔT=50°C	l	728	977	1346	1726	1915
90 min. ΔT=50°C	l	955	1341	1926	2507	2796
120 min. ΔT=50°C	l	1182	1705	2507	3288	3676
Continuous ΔT=50°C	l/h	454	728	1161	1561	1760
Heating-up time ΔT=50°C	min.	41	25	13	10	9
30 min. ΔT=55°C	l	455	558	696	860	941
60 min. ΔT=55°C	l	662	888	1223	1569	1741
90 min. ΔT=55°C	l	868	1219	1751	2279	2541
120 min. ΔT=55°C	l	1074	1550	2279	2989	3342
Continuous ΔT=55°C	l/h	413	661	1055	1419	1600
Heating-up time ΔT=55°C	min.	45	27	14	11	9
Electrical data						
Power consumption	W	100	100	100	275	300
Power supply	VAC/Hz	230 (-15/+10%) / 50				
General						
Pressure differential	Pa	200/170	270/240	255/225	610/580	220/190
Diameter of air restrictor	mm	36	42	54	48	64
Anodes	-	2	2	4	4	4
Maximum working pressure	bar	8				
Maximum weight	kg	539	543	548	573	573
Shipping data						
Weight empty	kg	230	245	295	320	320
Weight incl. packaging	kg	260	275	325	350	350
Width packaging	mm	800	800	800	800	800
Height packaging	mm	2080	2080	2080	2080	2080
Depth packaging	mm	1040	1040	1040	1040	1040

* Gas data on gross value
** Gas consumption at 15°C and 1013.25 mbar

Dimensions

BFM 30-80

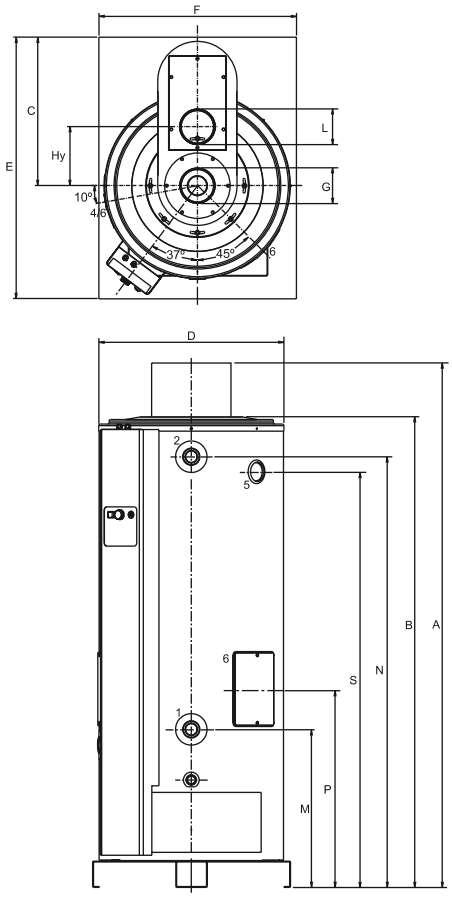


	BFM 30	BFM 50	BFM 80	BFM 100	BFM 120
A	2000	2000	2020	2020	2020
B	1800	1800	1820	1820	1820
C	580	580	580	580	580
D	710	710	710	710	710
E	1000	1000	1000	1000	1000
F	755	755	755	755	755
G	125	125	150	200	130
Hy	-	-	-	235	235
K	600	600	600	600	760
L	125	150	200	130	130
M	600	600	590	590	590
N	1640	1640	1655	1655	1655
P	770	770	760	760	760
R	550	550	540	540	540
S	1600	1600	1600	1600	1600

1	Cold water (external)	R1 1/2
2	Hot water (internal)	Rp1 1/2
3	Gas control (internal)	Rp 3/4 (BFM120 = Rp1)
4	Tank drain valve (internal)	R1 1/2
5	T&P valve (internal)	1-11.5 NPT (BFM 30-50) Rp1 1/2 (BFM 80-120)
6	Cleaning and inspection opening	Ø100

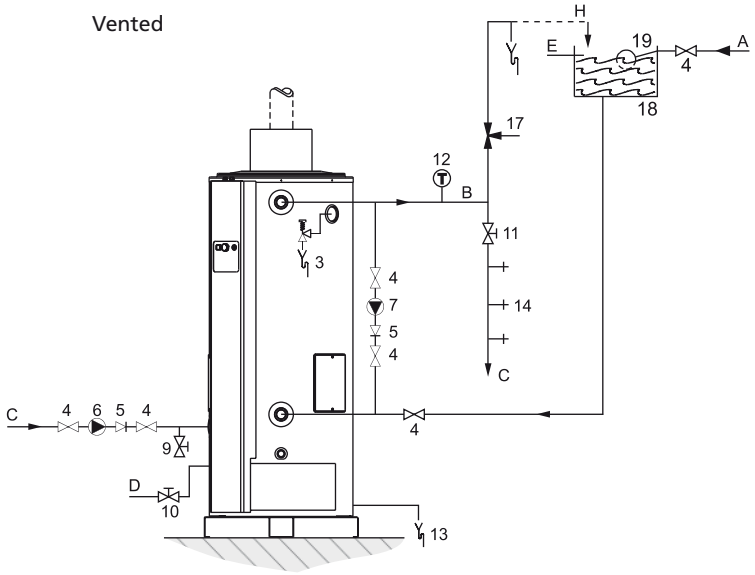
Dimensions in mm. All BFM water heaters receive a three years warranty on the tank and one year on parts.

BFM 100-120

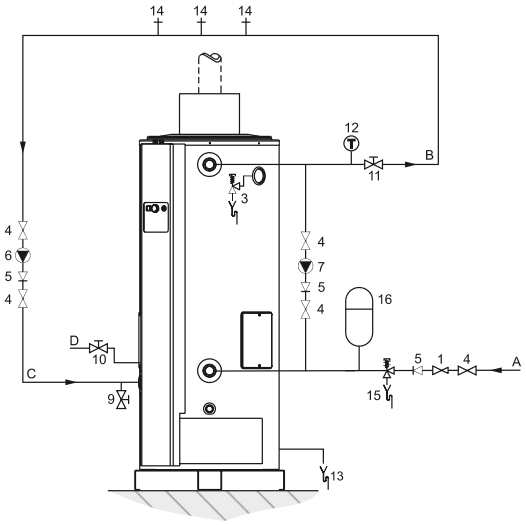


Installation diagrams

Vented



Unvented



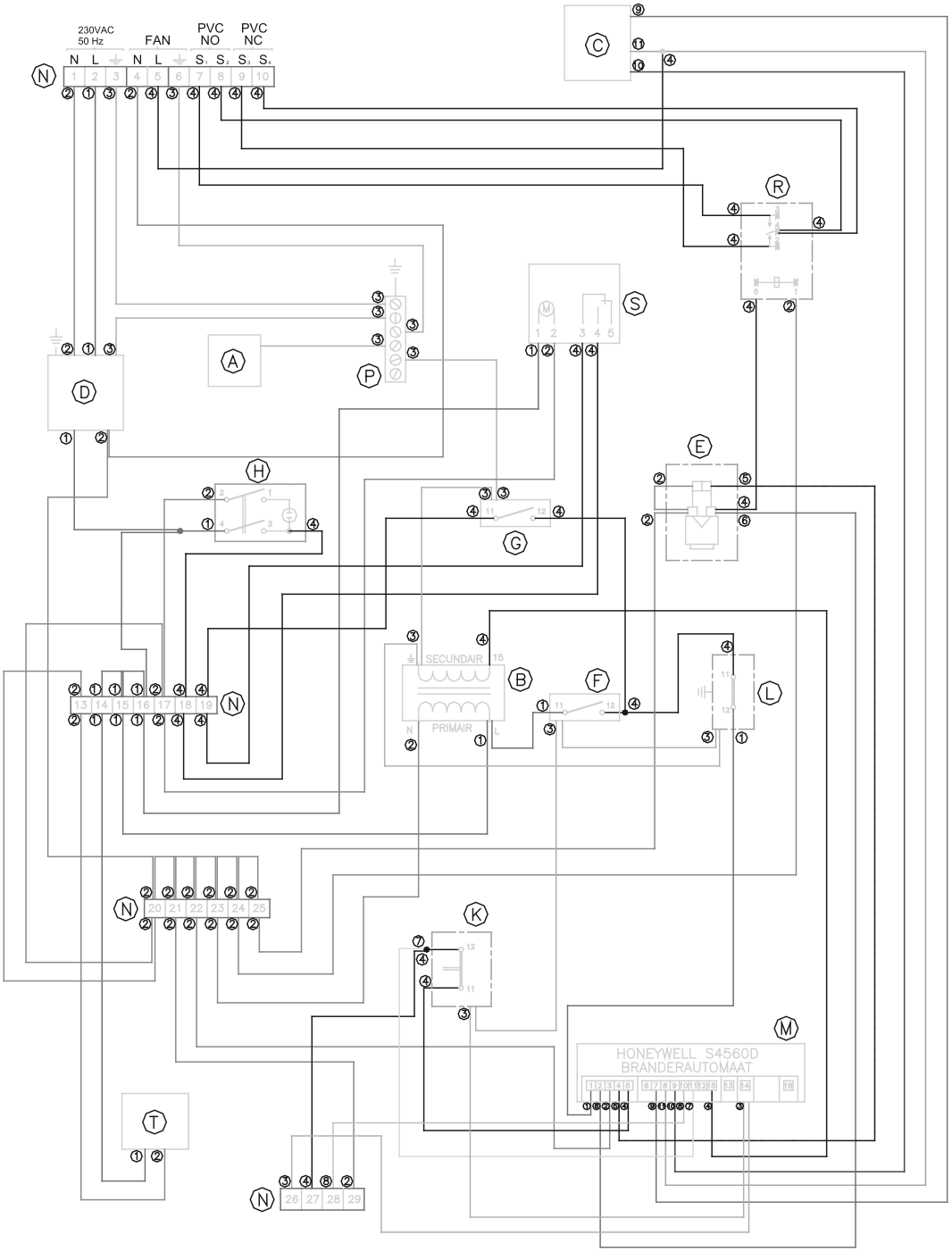
1 Pressure reducing valve
3 T&P valve
4 Stop valve
5 Non-return valve
6 Circulation pump
7 Destratification pump
9 Drain valve
10 Gas cock
11 Isolating valve
12 Temperature gauge
13 Condense drain
14 Hot water outlets
15 Expansion relief valve
16 Expansion vessel
17 Three way valve
18 Water tank
19 Float valve

A Cold water
B Hot water
C Return circulation
D Gas supply
E Overflow pipe
H Expansion vent pipe

A.O. Smith unvented system kits utilise combination valves.

Further installation and connection details can be found in the Installation & Commissioning Manual.

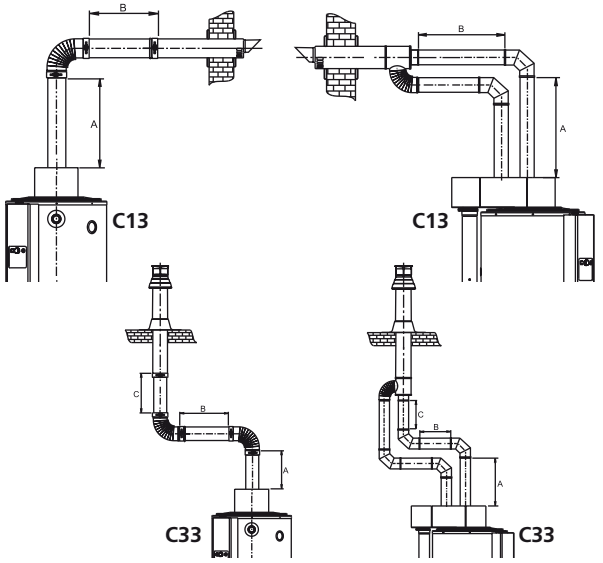
Electrical diagram



A = Jacket
B = Isolating transformer
C = APDS (Air pressure differential switch)
C = Filter
E = Reset button
F = Frost thermostat
G = Control thermostat
H = ON/ OFF switch
K = Safety thermostat
L = High-limit thermostat
M = Burner control
N = Connector clip strip
P = Earthing strip
R = Clock (optional)
S = Relay
T = Potentiostat (optional)

Colour code cables
① = brown
② = blue
③ = yellow/green
④ = black
⑤ = white
⑥ = red
⑦ = white/orange
⑧ = white/purple
⑨ = black/green
⑩ = black/red
⑪ = black/white

Installation options



A BFM water heater should be installed according category C13 or C33.

	BFM 30	BFM 50	BFM 80	BFM 100	BFM 120
Concentric	x	x	x	-	-
Parallel	-	-	-	x	x
Diameter (mm)	80/125	100/150	130/200	2 x 130	2 x 130
Max. length (m)	7	7	7	7	7
Max. 45/90° bends a pipe	2	2	2	2	2

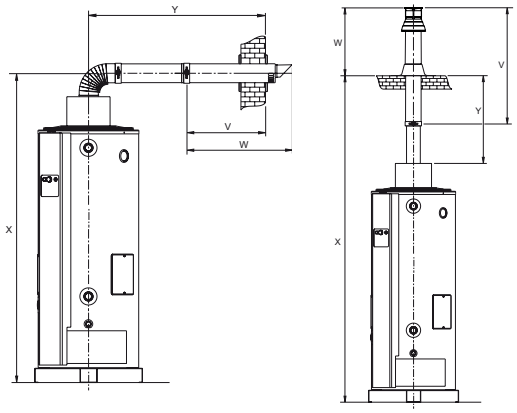
Concentric flues
It is **not** permitted to use more than the specified number of bends, even when the duct is shorter than the maximum length. A 45° bend is equivalent to a 90° bend.

Parallel flues
The parallel flue of a BFM 100 of 120 unit should always be connected to the wall or roof penetration using the standard transition piece (0306801). The two ducts shall **not** terminate in different pressure zones.

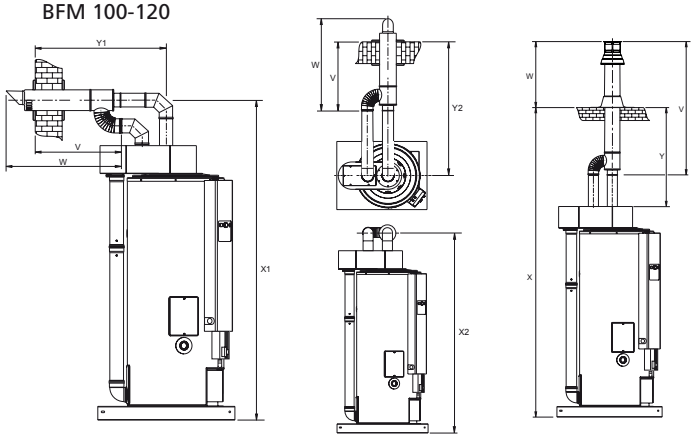
Note: horizontal flue runs must be installed with a fall of at least 5 mm per metre.

Minimum space requirements

BFM 30-80



BFM 100-120



	BFM 30 Ø80/125	BFM 50 Ø100/150	BFM 80 Ø130/200	BFM 100 2 x Ø130	BFM 120 2 x Ø130
Minimal space for wall duct (mm)					
V	550	550	640		
W	725	790	940		
X	2115	2165	2190		
Y	1195	1215	1310		
Y *	745	765	860		
V				700	700
W				1000	1000
X1				2480	2480
Y1				955	955
X2				2140	2140
Y2				1320	1320
Y2 *				870	870
Minimal space for roof duct (mm)					
V	1230	1310	1610		
W	605	645	1000		
X	3575	3615	3580		
Y	1575	1615	1560		
Y **	625	665	610		
V				2560	2560
W				1000	1000
X				3580	3580
X **				2630	2630
Y				1560	1560
Y **				610	610

For the parts numbers of components and flue gas ducts, etc. please refer to the "Maintenance and accessories" chapter.

* Distance without concentric pipe between bend and wall duct.
** Distance without concentric pipe between appliance and roof duct.

Data subject to change INT/1108/BFM/02
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